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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/648,627	08/25/2003	Manish Chandhok	10559-839001 / Intel P167	4364
20985	7590	05/18/2005		
FISH & RICHARDSON, PC 12390 EL CAMINO REAL SAN DIEGO, CA 92130-2081			EXAMINER STOCK JR, GORDON J	
			ART UNIT	PAPER NUMBER
			2877	

DATE MAILED: 05/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/648,627	Applicant(s) CHANDHOK, MANISH	
	Examiner Gordon J. Stock	Art Unit 2877	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 February 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-3,5-15 and 28-46 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,2,5-11 and 13 is/are allowed.
- 6) ☒ Claim(s) 3,12,14,15 and 28-46 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 February 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. **Claims 3, 12, 14-15, 28-46** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. As to **claim 3**, “using an alignment grating comprising transmitting light” was not reasonably conveyed in Fig. 3 in the reflective embodiment of the invention. In **claim 12**, “moving the pupil filter to a position not in a light path between the imaging plate and the wafer” was not reasonably conveyed in the reflective embodiment of Fig. 3 was just conveyed in the transmissive embodiments (Figs. 1 and 2a). In **claims 14-15**, “using an alignment grating comprises transmitting light” and “modifying the patterning light using a device pattern comprises subsequently transmitting light of a different exposure wavelength through the device pattern” was not reasonably conveyed in Fig. 3 of the reflective embodiment and just conveyed in the transmissive embodiments (Figs. 1 and 2a). In **claims 28, 31-32**, combining transmissive properties of a transmissive optical system such as numerical aperture, NA, and a pitch inversely proportional to the NA with a reflective optical system that does not have transmissive elements but has an alignment grating for reflecting light was not reasonably conveyed (Figs. 1, 2a, 3). In **claim 35**, “wherein the imaging plate is chosen from the group consisting of a mask and a

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reticle” was not reasonably conveyed in the Fig. 3 reflective embodiment but was conveyed for the transmissive embodiments (Figs. 1 and 2a). In **claims 36-37**, combining transmissive elements of a transmissive optical system, lenses, with a reflective embodiment comprising a reflective grating and requiring no transmissive elements was not reasonably conveyed (Figs. 1, 2a, 3). **Claims 29, 30, 33-34, 38-46** are rejected for being dependent upon a rejected base claim.

*Allowable Subject Matter*

3. **Claims 1, 2, 5-11, and 13** are allowed.

**Claims 3, 12, 14-15, 28-46** would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 1<sup>st</sup> paragraph, set forth in this Office action.

As to **claim 1**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in a method “modifying alignment light using an alignment grating comprises reflecting light from the alignment grating; and “further modifying the alignment light at a pupil plane of the optical system to have an intensity periodicity of less than the first pitch at wafer plane,” in combination with the rest of the limitations of **claims 1-3, 5-15**.

As to **claim 28**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in a lithography alignment system “an alignment grating positioned to receive alignment light and to modify at least a portion of the alignment light at least by reflecting light from the alignment grating” with the particular pupil filter in combination with the rest of the limitations of **claims 28-46**.

*Response to Arguments*

4. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

*Conclusion*

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

*Fax/Telephone Numbers*

If the applicant wishes to send a fax dealing with either a proposed amendment or a discussion with a phone interview, then the fax should:

- 1) Contain either a statement "DRAFT" or "PROPOSED AMENDMENT" on the fax cover sheet; and
- 2) Should be unsigned by the attorney or agent.

This will ensure that it will not be entered into the case and will be forwarded to the examiner as quickly as possible.

*Papers related to the application may be submitted to Group 2800 by Fax transmission. Papers should be faxed to Group 2800 via the PTO Fax machine located in Crystal Plaza 4. The form of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The CP4 Fax Machine number is: (703) 872-9306*

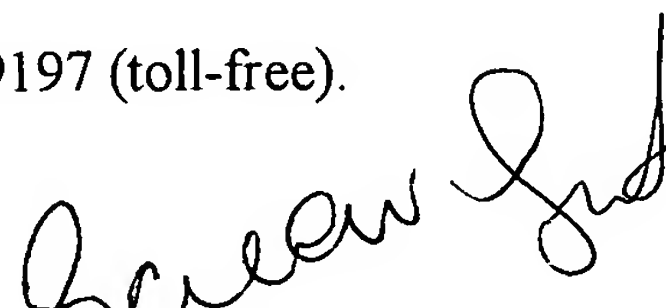
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gordon J. Stock whose telephone number is (571) 272-2431.

The examiner can normally be reached on Monday-Friday, 10:00 a.m. - 6:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr., can be reached at 571-272-2800 ext 77.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private Pair system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

gs  
May 10, 2005

  
Zandra V. Smith  
Primary Examiner  
Art Unit 2877